

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of

YIFAN GONG

Serial No. 09/589,252 (TI-25489.1)

Filed June 7, 2000

For: SOURCE NORMALIZATION TRAINING  
FOR HMM MODELING OF SPEECH

Art Unit 2641

Examiner A. Azad

Commissioner for Patents  
Washington, D.C. 20231

Sir:

**REPLY BRIEF ON APPEAL**

This is a reply to the examiner's answer of September 7, 2001. This is an appeal of Claim 9, the only claim rejected under 35 U.S.C. § 102(e). Applicant's Claim 9 is rejected under 35 U.S.C. § 102(e) as being anticipated by Juang et al. reference, U.S. Patent No. 5,812,972.

In applicant's argument on page 3 states, "The reference transforms the input speech and not the speech models or speech signal source representation to reduce the recognition error rate." The examiner maintains the claim does not call for transforming speech models. This is an error in the examiner's understanding of applicant's claimed invention and applicant's argument. Applicant's claimed invention calls for a speech recognizer that comprises a speech signal source representation and a set of transformations. The signal source representation and the set of transformations are jointly determined to reduce the recognition error rate by

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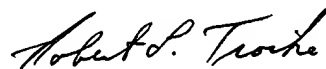
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performing the step of determining a new set of signal source representation and determining new transformation jointly with the new signal source representation. Applicant teaches how to change the representations or models (in addition to introducing a transformation ) for a lower recognition error. The application describes how to jointly determine the signal representation and transformations (Equations 21-26). It does not change the incoming speech. Fig. 5 illustrates starting with an initial model, performing estimation of intermediate quantities in step 23a, performing re-estimation in step 23b, deriving mean vector in step 23c and in step 23d solving jointly for mean vectors and bias vectors using linear equations 21-26 and then replacing old model parameters for the calculated ones to produce the new model. It starts with an initial model or signal source representation at step 21 in Figure 5 replaces old model in step 24 and gets a new model in step 25 or a new signal source representation. There is no changing of incoming speech. The claim calls for a speech recognizer and does not even mention incoming speech or changing incoming speech. It only discusses signal source representation.

### CONCLUSION

For the reasons stated above and since there are no other grounds of rejection, reversal of the final rejection and allowance of the Claim 9 is requested that justice be done in the premises.

Respectfully submitted,



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**APPENDIX**

The claim on appeal reads as follows:

9.A speech recognizer comprising:

a speech signal source representation;

a set of transformations;

said signal source representation and said set of transformations being jointly determined to reduce the recognition error rate by performing the step of determining a new set of signal source representation and determining new transformations jointly with the new signal source representation.